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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,408	10/28/2003	Venkat Rangan	112-0122US	5639

29855 7590 04/20/2006

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EXAMINER	
SUN, SCOTT C	

ART UNIT	PAPER NUMBER
2182	

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,408	RANGAN ET AL.	
	Examiner	Art Unit	
	Scott Sun	2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

ftzm. fleming

FRITZ FLEMING
PRIMARY EXAMINER
GROUP 2100
AU2181

Supervisory 4/14/2006

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/20/2006 has been entered.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1, 10, 19, and 28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1, 9, 17, 25 of copending Application No. 10,695,435. Although the conflicting claims are not identical, they are not patentably distinct from each other because data virtualization in a storage network using switched fabric would be an obvious addition to one of ordinary skill in the art at the time of invention. The motivation for doing so would have been to hide the complexities of storage system to the user and allow heterogeneous storage types to be used by the same host.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edsall et al (PG Pub #2003/0172149) in view of Testardi et al (PG Pub #2003/0140210).

6. Regarding claim 19, Edsall discloses a network (SAN, figure 1B) comprising:

at least one host (hosts 144, 146) adapted to be connected to a switched fabric (switched fabric made up of switches 148, 150, 152; inter-switch links 154, 156; paragraphs 39, 40);

at least two storage units (storage devices 132-142) each adapted to be connected to a switched fabric (switches 148, 150, 152; inter-switch links 154, 156);

a switched fabric (switches 148, 150, 152; inter-switch links 154, 156) connected to and coupling the at least one host and the at least two storage units (paragraph 39), the switched fabric comprising:

at least one switch (switches 148, 150, 152) for coupling to the at least one host and the at least two storage units; and

a storage processing device (port processing logic in the switches, shown in figure 3A; paragraph 53) coupled to the at least one switch and for coupling to the at least one host and first and second storage units of the at least two storage units, where the first and second storage units may be directly connected to the storage processing device or may be coupled through the at least one switch, the storage device including:

an input/output module (logic elements 302, 304, 306, 320, 322, 324) including processors to receive, operate on, and transmit network traffic (paragraph 53), and

Edsall does not disclose explicitly the storage processing device comprising a control module configured to perform data migration between the first and second storage units. However, Testardi discloses a switched fabric (element 20; figure 3;

paragraph 64) comprising a storage processing device (distributed virtualization engines 34a-c) including a control module (fast paths and control paths, paragraph 69) configured to perform data migration (online-migration; paragraph 65, 66; details in figures 23, 24, paragraphs 204-212) between a first (physical volume p1) and a second storage device (physical volume p2). Teachings of Edsall and Testardi are from the same field of storage networks, and in particular using switched fabric to facilitate data operations.

Therefore, it would have been obvious at the time of invention for a person of ordinary skill in the art to combine teachings of Edsall with teachings of Testardi by implementing the data migration logic and data structures in the switched fabric system of Edsall for the benefit of efficient dispatch of data operations (in the instant case, data migration) to storage devices (Testardi, paragraph 9).

7. Regarding claim 20, Edsall and Testardi combined disclose claim 19, and Testardi further discloses wherein said processors include table information (figure 23, Rmap 560 and redirect tables) related to data migration (paragraph 204) and wherein said control module is coupled to said table information to maintain said table information for data migration (paragraph 206).

8. Regarding claim 21, Edsall and Testardi combined disclose claim 20, and Testardi further discloses wherein table information includes a barrier entry (barrier range) and said processors delay data write operations if said barrier entry relates to said data write operation (paragraph 207).

9. Regarding claim 22, Edsall and Testardi combined disclose claim 20, and Testardi further discloses wherein said table information includes an entry (figure 23) related to the extents in the data migration, said entry defining an extent operation type (paragraph 204, 207).

10. Regarding claim 23, Edsall and Testardi combined disclose claim 22, and Testardi further discloses wherein said table information further includes a legend entry (rmap) for each extent operation type defining operations for the extent (paragraph 207).

11. Regarding claim 24, Edsall and Testardi combined disclose claim 23, and Testardi further discloses wherein said table information further includes entries referenced by said legend entry defining physical extent location. Examiner notes that the data migration is performed between two physical volumes, and therefore the table information mapping extents in the migration operation reference physical locations of the extents.

12. Regarding claim 25, Edsall and Testardi combined disclose claim 24, and Testardi further discloses wherein legend entries include entries indicating data not migrated (entry value 1), data migrated (entry value 2), and a barrier entry for data being migrated (barrier range; read-only field 'r/o').

13. Regarding claim 26, Edsall and Testardi combined disclose claim 25, and Testardi further discloses wherein said processors delay data write operations if said barrier entry relates to said data write operations ("write operation faulted to CP to be later retried", paragraph 207).

14. Regarding claim 27, Edsall and Testardi combined disclose claim 26, and Testardi further discloses wherein said control module provides commands to copy data and places said barrier entry for said data being copied (paragraph 206).

15. Claims 1-18, 28-36 are substantially similar to claims 19-27 above. The same grounds for rejection are applied.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Sun whose telephone number is (571) 272-2675. The examiner can normally be reached on M-F, 10:30am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim N. Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SS
4/13/2006

Supervisory

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